



Academic Computer Centre
CYFRONET AGH

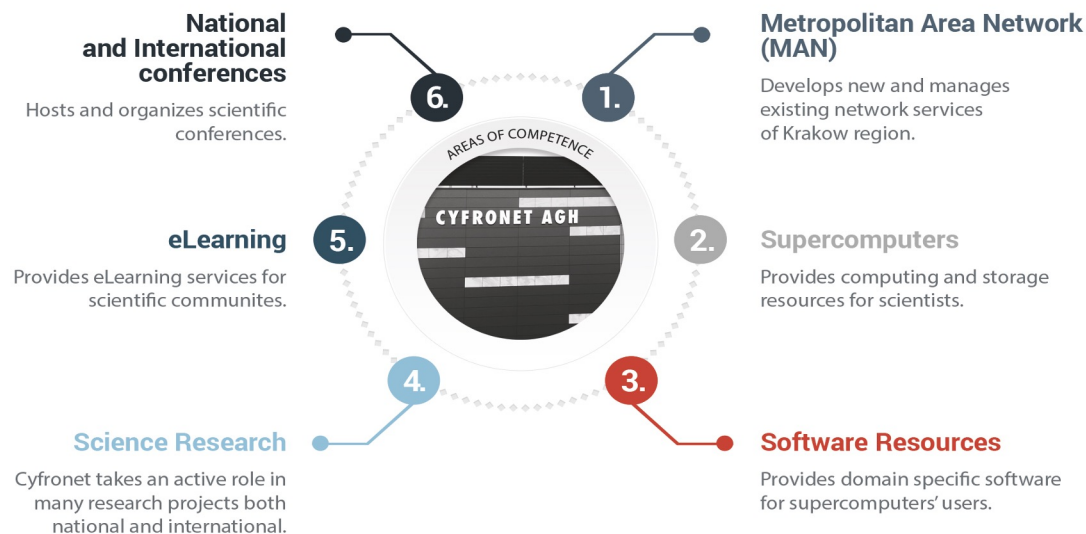


Roksana Wilk, ACC Cyfronet AGH

Head of Data Processing Laboratory, Cyfronet's EOSC and Open Science affairs rep

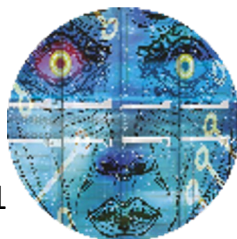
PLGrid in EOSC

- The largest Polish Academic Computer Centre
 - 50 years of experience in IT provision
 - Centre of excellence in HPC, Grid and Cloud Computing
 - Home for Athena, Ares and Prometheus supercomputers
 - LUMI consortium partner (EuroHPC pre-exascale supercomputer #3 on TOP500)
- Legal status: an autonomous within AGH University of Science and Technology
- Staff: 180+ , ca. 80 in R&D
- Leader of PLGrid: Polish Grid and Cloud Infrastructure for Science
- NGI Coordination in EGI e-Infrastructure



Prometheus

- 2.40 PFLOPS
- 53 568 cores
- From 2015 to 2021 1st HPC system in Poland (475th on Top 500, 38th in 2015)



Athena

- 7.71 PFLOPS
- 384 A100 GPGPUs
- 1st HPC system in Poland (since 2022, 105th on Top500)
- 9th on Green500



Ares

- 4.00 PFLOPS
- 38 112 cores
- 290th on Top 500



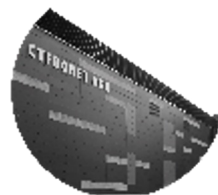
Computing portals and frameworks

- OneData
- PLG-Data
- Rimrock
- InSilicoLab



Storage

- 60+ PB
- hierarchical data management



Research & Development

- distributed computing environments
- computing acceleration
- machine learning
- software development & optimization

Data Centres

- 3 independent data centres
- dedicated backbone links

Computational Cloud

- based on OpenStack





Najszybszy superkomputer dla AI i akcelerowanych symulacji w Polsce

7,7 PFLOPS HPC (FP64)

240 PFLOPS AI (FP16)

#105 na Top500 (5 PFLOPS)

#12 na HPL-AI (50 PFLOPS)



HPL-AI



- Moc obliczeniowa: **7,7 PFLOPS** (240 PFLOPS FP16 AI)
 - 48 serwerów FormatServer (platforma SuperMicro)
 - 2 procesory AMD EPYC 7742 (128 rdzeni, 3 GHz)
 - 1024 GB RAM
 - 8 akceleratorów NVIDIA A100 40 GB HBM2
 - NVSwitch
 - 4 linki Infiniband HDR 200 Gb/s
 - Storage
 - 1,7 PB NVMe, ~400 GB/s
 - Lustre scratch
 - System operacyjny: Rocky Linux 9 (RHEL9)
 - TOP500: #105
 - Green500: #9



CERTIFICATE

Athena - FormatServer THOR ERG21, AMD EPYC 7742 64C 2.25GHz, NVIDIA A100 SXM4 40 GB,
Infiniband HDR

Cyfronet, Poland

is ranked

No. 9

among the World's TOP500 Supercomputers

with 29.926 GFlops/watts Performance

in the Green500 List published at the ISC22

Conference on June 01, 2022.

Congratulations from the Green500 Editors

A handwritten signature in black ink, appearing to read 'Wu-chun Feng'.

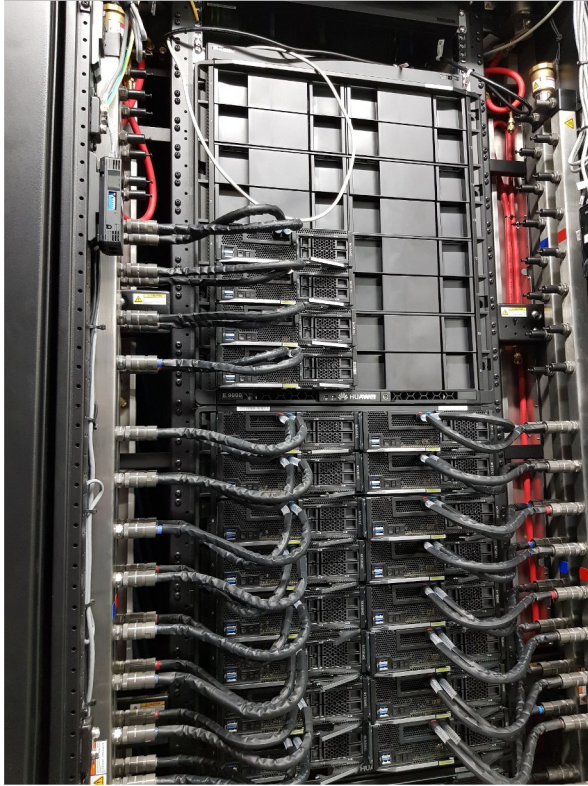
Wu-chun Feng
Virginia Tech

A handwritten signature in black ink, appearing to read 'Kirk Cameron'.

Kirk Cameron
Virginia Tech



- Moc obliczeniowa: **3,51 PFLOPS**
 - Serwery CPU (532+256)
 - 2x Intel Xeon Scalable 8268 (48 rdzeni, 2.9 GHz , AVX-512)
 - 192/384 GB RAM
 - Infiniband EDR 100 Gb/s
 - Partycja CPU: 25536 rdzeni, 4 GB/rdzeń
 - Partycja Bigmem: 12288 rdzeni, 8 GB/rdzeń
 - Serwery GPU (9)
 - 2x Intel Xeon Scalable 6242 (32 rdzenie, 2.8 GHz, AVX-512)
 - 8x NVIDIA V100 32 GB SXM2
 - Partycja GPU: 72 akceleratory NVIDIA V100
 - Pamięć dyskowa
 - Lustre scratch, 80 GB/s, 4 PB
 - System operacyjny: Rocky Linux
 - TOP500: #290





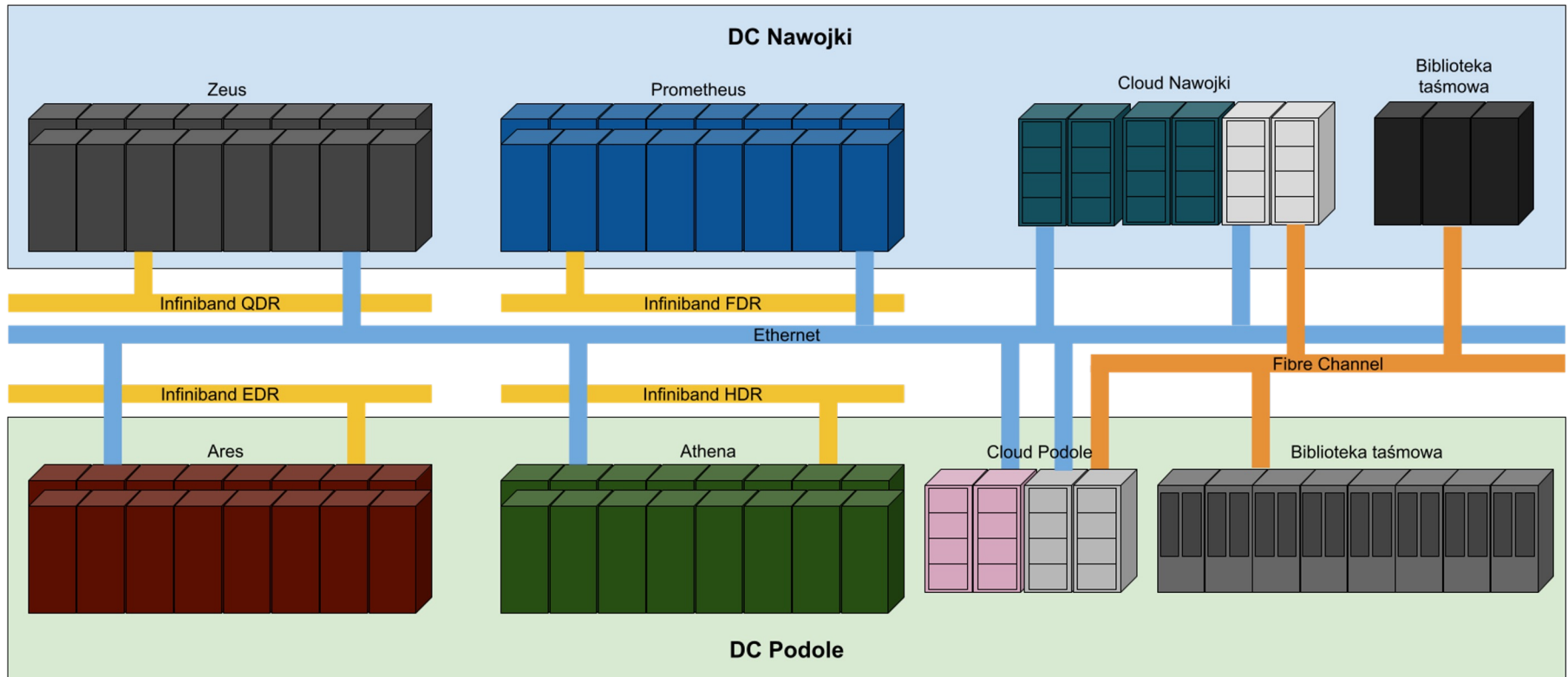
- Moc obliczeniowa: **2,4 PFLOPS**
 - 2232 serwery HPE XL730f / XL750f Gen9
 - 2x Intel Xeon E5-2680 v3 (Haswell)
 - 24 rdzenie, 2500-3300 MHz
 - 128 GB RAM DDR4
 - 144 karty NVIDIA Tesla K-40
 - Pamięć dyskowa
 - Lustre, 2x 5 PB (120 GB/s)
 - Sieć Infiniband FDR 56 Gb/s
 - Chłodzenie
 - Ciecz i „suchy styk”
 - Podciśnienie
 - System operacyjny: CentOS 7
 - TOP500: #475 (#38 w 2015)





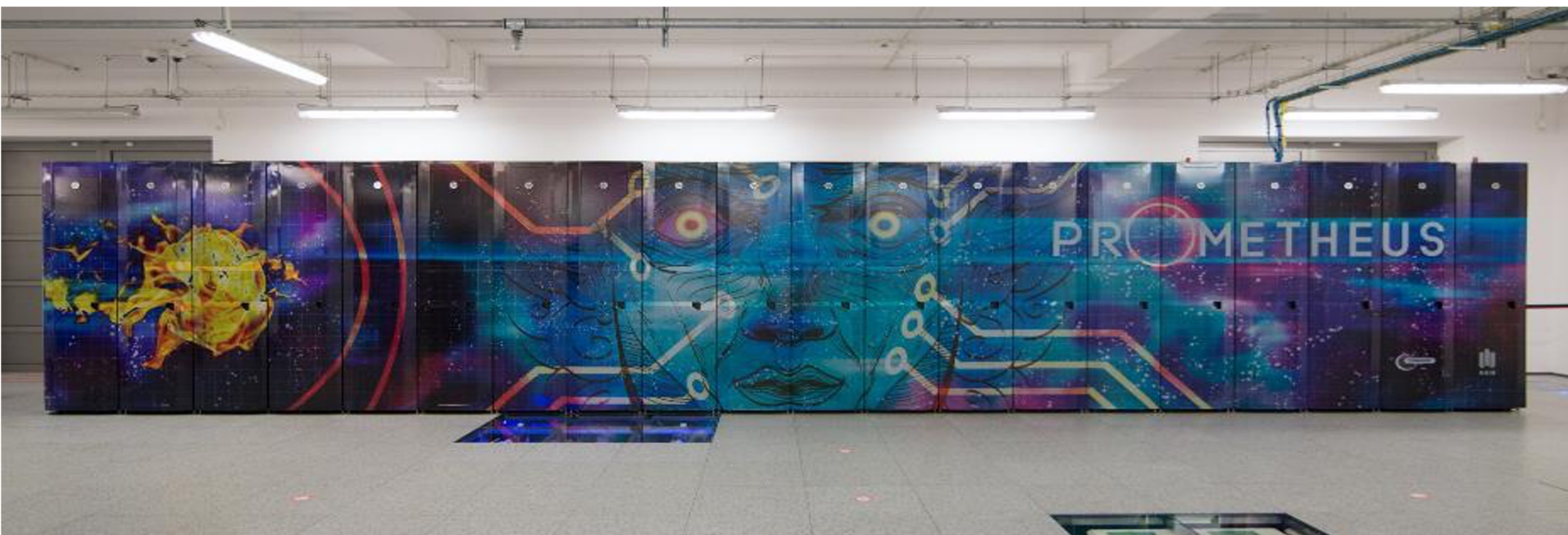
KSAF





? Prometheus and Zeus clusters

- ? 5000+ active users
- ? 550+ computational grants
- ? 5.5+ millions of jobs in 2021
- ? 370+ millions of CPUhours spent in 2021
- ? 2021 biggest jobs
 - ? 27 648 cores
 - ? 330 000 CPUhours in one job
- ? 1300+ software modules



PLGrid Infrastructure

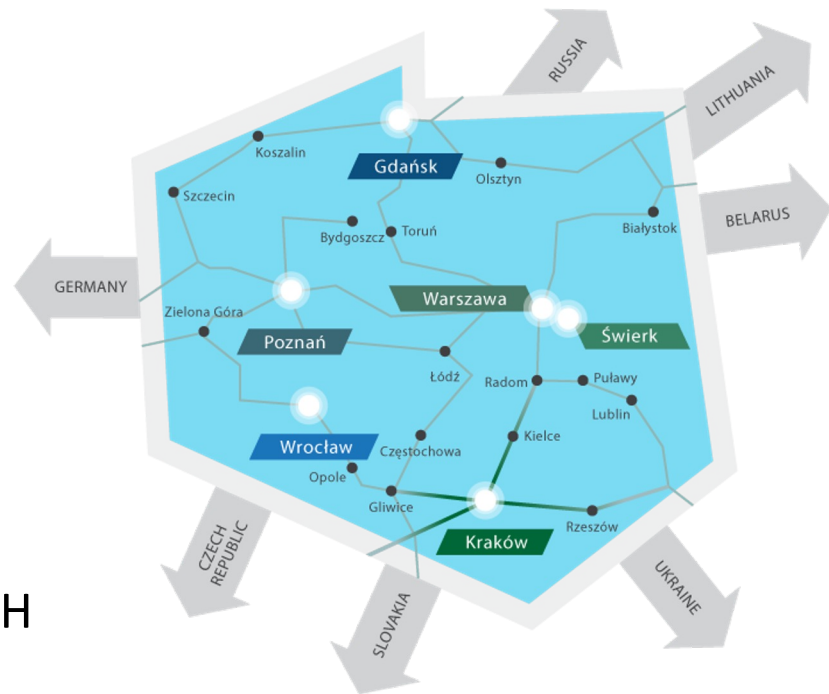


- Projects:
 - PL-Grid
 - PLGrid Plus
 - PLGrid NG
 - PLGrid Core

- PLGrid Consortium

- Coordinator: ACC Cyfronet AGH
- Partners:

- Poznan Supercomputing and Networking Center, Poznań
- Interdisciplinary Centre for Mathematical and Computational Modelling, Warszawa
- Wrocław Centre for Networking and Supercomputing, Wrocław
- Tricity Academic Computer Centre, Gdańsk
- National Centre for Nuclear Research, Świerk



<http://www.plgrid.pl/en/>



Welcome to the PLGrid portal!

At this point you can prepare to use the PLGrid infrastructure - create affiliation, apply for a service or a grant. We encourage you to use [PLGrid user manual.](#) If it is necessary to contact Infrastructure employees, we recommend creating message in the system [Helpdesk PLGrid.](#)

The most important functionalities



Affiliation

The PLGrid infrastructure provides resources to people associated with polish science. Enter the scientific unit under which you conduct the research. Then select whether you are an employee or if you work with some of employees (e.g. as a student or a PhD student).



Services

To be able to use the resources, select the services that interest you (big data, storage, cloud computing, social tools), ways to access them and additional services, which will improve the use of the Infrastructure.



Teams















In order to request a proper grant, create a team that reflects the research group with which you want to share the grant. The team can be one person team.



Grants

The use of resources takes place within grants -contracts for the use of resources, defining the parameters of the resources made available. Apply for a grant, provide the research topics and technical parameters of the grant.



-  Affiliation
-  Services
-  Teams
-  Certificates
-  Projects
-  **Grants**
-  Proper grants
-  LUMI projects
-  Technical grants
-  Test grants
-  Publications
-  Reports
-  Messages
-  Profile

GRANT GENERAL 1/4

The main settings of the grant

Grant is a continuation *

YES
 NO

Selected preceding grant

GRANT ID	plggsat4envi2021
TEAM	plggsat4envi
START	13-01-2021
END	12-01-2022
GRANT STATUS	Expired

Grant duration

Start date * (Start date of the grant)

18-01-2022 

End date * (End date of the grant)


16-01-2023 

1. GENERAL

2. RESOURCES

3. PUBLICATIONS

4. SUMMARY

 Chat with grant support
No new messages

Details

All changes have been saved

GRANT
plggsat4envi2022

TEAM
plggsat4envi

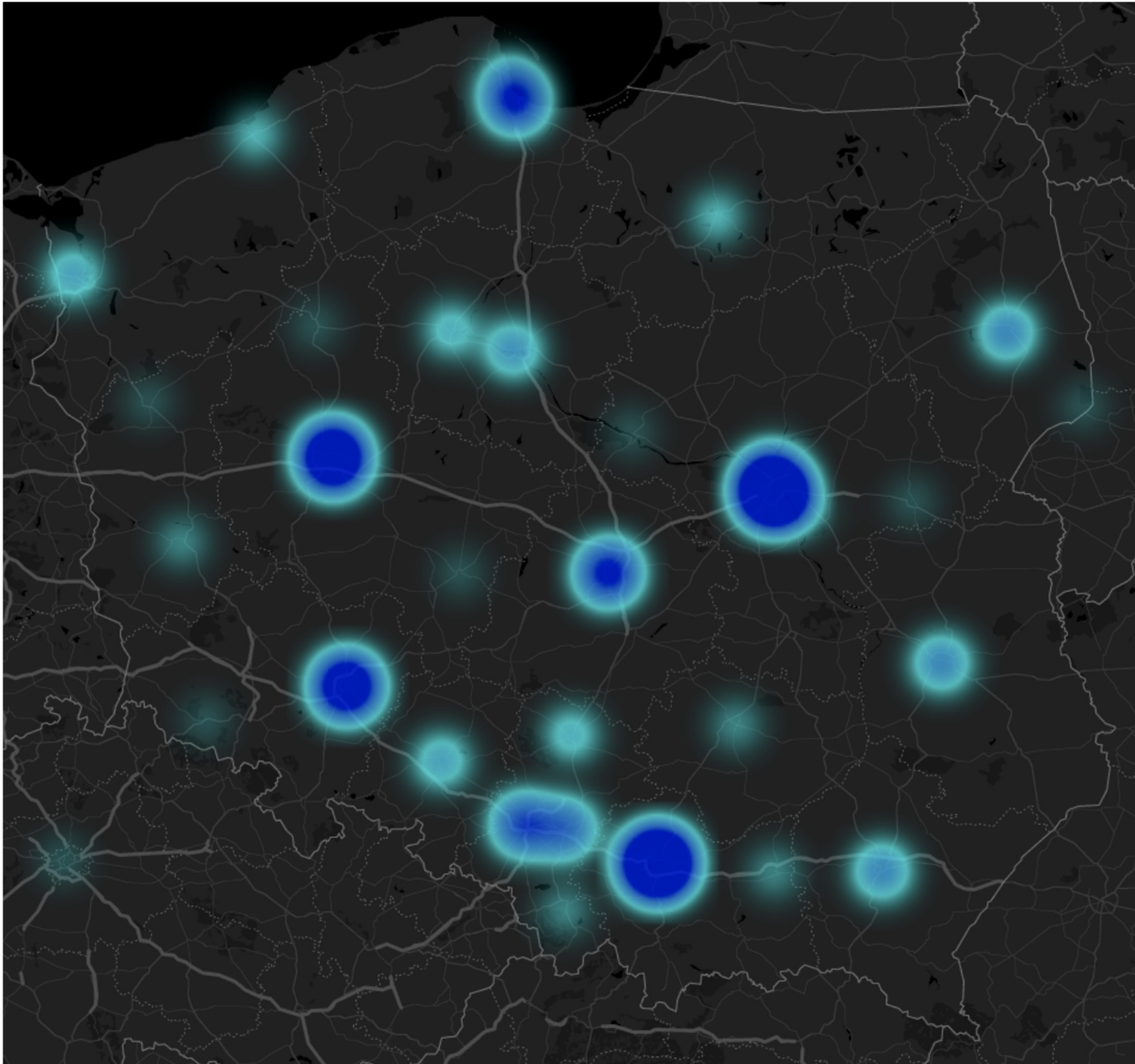
AFFILIATION
Państwowy Instytut Badawczy; Instytut Meteorologii i Gospodarki Wodnej

GRANT CATEGORY
Medium

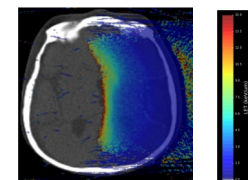
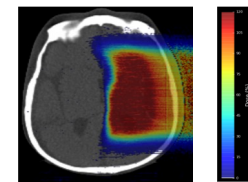
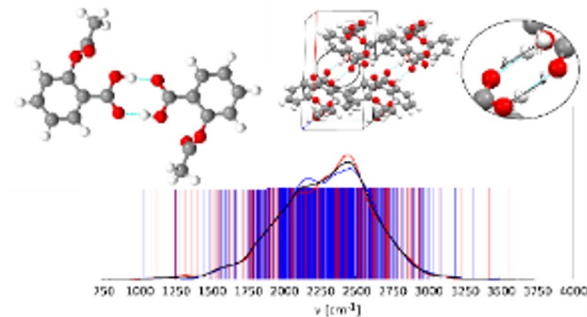
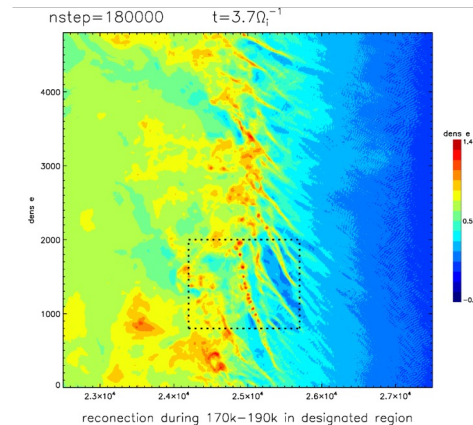
STATUS
Accepted

DOCUMENT ON THE SIDE
PLGrid User

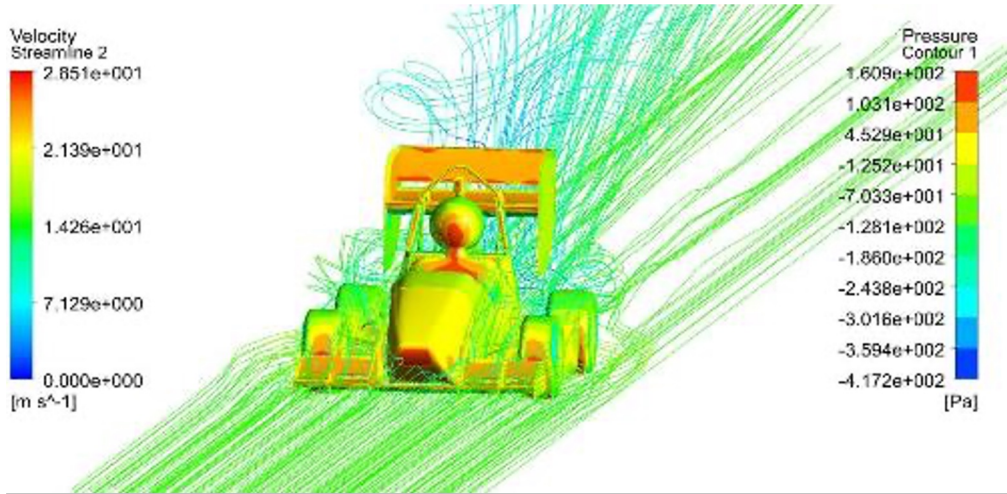




- Astrophysics: users' own code
 - Particle in Cell written in Fortran
 - Production runs - 9600 cores
 - One run up to 460 800 h CPU time – 53 years
- Chemistry: CPMD, CP2k, Jaguar, Gaussian
 - Importance of hydrogen bonds in biomolecules
 - Jobs: 24-240 cores
 - Hundreds of thousands of jobs with walltime < 1 h
 - Efficient usage resources through backfill
- Biophysics: Proton therapy
 - Monte Carlo simulations of a proton beam
 - Monte-Carlo based treatment planning
 - Jobs:
 - thousands of jobs with MC simulations (hours on hundreds of nodes)
 - Interactive large data processing with Jupyter notebooks

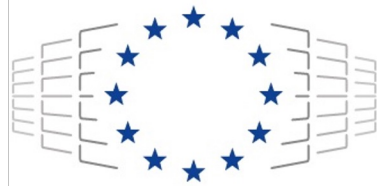


● AGH Racing – Formula Student



● AGH Solarboat – Solar Sport One and Monaco Solar & Energy Boat Challenge





EuroHPC
Joint Undertaking



L U M I



sat4envi





www.cyfronet.pl



www.plgrid.pl



top500.org

